

## CLAIMS

### WHAT IS CLAIMED IS:

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1. A system for generating transactions on a bus comprising:  
at least one instruction memory storing a predefined bus stimuli instruction; and  
at least one phase generator coupled between the bus and the instruction memory  
for providing signals to the bus in response to the instruction.
  2. The system of claim 1 wherein the instruction memory stores a plurality of  
predefined bus stimuli instructions.
  3. The system of claim 1 wherein the instruction comprises an instruction  
10 word having a predefined length.
  4. The system of claim 1 wherein the at least one phase generator is further  
responsive to signals received from the bus.
  5. The system of claim 2 further comprising a response memory coupled to  
the phase generator storing predefined responses to signals received from the bus.
  - 15 6. The system of claim 1 wherein the at least one phase generator includes at  
least one digital logic device responsive to the instructions and at least one phase engine  
for controlling timing of the bus stimuli.
  7. The system of claim 6 wherein the digital logic device comprises a field  
programmable gate array.

a request logic device responsive to the instruction memory;  
a data logic device responsive to the instruction memory;  
a data memory coupled to the data logic device storing data to be exchanged with  
agents on the bus;  
5 a system protocol generator coupled to the bus and the flow logic device;  
an arbitration protocol generator coupled to the flow logic device and the bus;  
a request protocol generator coupled to the flow logic device, the request logic  
device and the bus;  
a snoop/error protocol generator coupled to the request logic device and the bus;  
10 a data protocol engine coupled to the data logic device; and  
a transaction response memory coupled to the flow logic device and the request  
logic device storing digital data representing predefined responses to  
signals received from the bus.

16. A system for generating transactions on a bus comprising:

15 first means for storing instructions representing predefined bus stimuli; and  
second means for providing signals to the bus in response to the stored  
instructions.

17. The system of claim 16 further comprising third means for storing data  
representing predefined responses to signals received from the bus, and wherein the  
20 second means implements the predefined responses based on the signals received from  
the bus.

18. The system of claim 16 further comprising fourth means for controlling the timing of the signals provided to the bus by the second means.

19. The system of claim 16 further comprising fifth means for storing data to be exchanged with agents on the bus, wherein the second means transmits data from the fifth means in response to the instructions stored in the first means.

20. The system of claim 19 wherein the second means further receives data from the bus and stores the data in the fifth means.

21. A method for generating transactions on a bus comprising the acts of:  
receiving instruction words representing predefined bus stimuli; and  
converting the instruction words to signals that, when applied to the bus, execute at least one phase of a bus transaction.

22. The method of claim 21 further comprising the acts of:  
defining a sequence of desired bus transactions; and  
assembling the sequence of desired bus transactions into an object file comprising instruction words representing predefined bus stimuli that, when applied to a bus, implement the sequence of bus transactions.

23. The method of claim 21 further comprising the act of providing predefined signals to the bus in response to signals received from the bus.

24. The method of claim 21 further comprising the act of exchanging data with agents on the bus.

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